WHAT IS CLAIMED:

1. A machine for use in manufacturing a fibrous material web comprising:

at least one electrostatic air boundary layer swirler arranged near a moving surface;

the moving surface comprising at least one of the fibrous material web, a belt, a roll, a felt, and a surface which supports the fibrous material web;

the at least one electrostatic air boundary layer swirler comprising at least one charging electrode and at least one counterelectrode;

the at least one electrostatic air boundary layer swirler being adapted to at least one of:

at least partially remove a laminar air boundary layer formed on the moving surface; and

at least partially disturb a laminar air boundary layer formed on the moving surface.

2. The machine of claim 1, wherein the fibrous material web is one of a paper and a cardboard web.

3. The machine of claim 1, wherein the moving surface comprises at least one of a revolving belt and a rotating roll.

4. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, whereby the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air

boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap.

5. The machine of claim 4, wherein the at least one electrostatic air boundary layer swirler is located a distance "a" from the gap.

6. The machine of claim 5, wherein the distance "a" is a maximum of approximately 1000 mm.

7. The machine of claim 5, wherein the distance "a" is in a range of approximately 100 mm to approximately 500 mm.

8. The machine of claim 4, further comprising at least one deflecting strip arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

9. The machine of claim 8, wherein the at least one deflecting strip is arranged between the electrostatic air boundary layer swirler and the gap, whereby at least a portion of swirled air is deflected from the moving surface.

10. The machine of claim 4, further comprising at least one suction device arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

11. The machine of claim 10, wherein the at least one suction device is arranged between the electrostatic air boundary layer swirler and the gap, whereby at least a portion of swirled air is deflected from the moving surface.

12. The machine of claim 10, wherein the at least one suction device is adapted to suction the moving surface in zones.

13. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is located in a press section.

14. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is located in a dryer section.

15. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, wherein the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap, and wherein the gap is formed between the moving surface and one of a roll and a cylinder.

16. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, wherein the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap, and wherein the gap is located downstream from a position where the fibrous material web separates from the moving surface.

17. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, wherein the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap, and wherein the gap is formed between the moving surface and additional moving surface.

18. The machine of claim 17, wherein the additional moving surface comprises a belt.

19. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, wherein the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap, and wherein the gap is formed between the moving surface and additional moving surface, whereby the moving surface comprises a smooth moving surface.

20. The machine of claim 19, wherein the smooth moving surface comprises a smooth roll.

21. The machine of claim 1, wherein the moving surface comprises one of a revolving belt and a roll.

22. The machine of claim 1, wherein the moving surface comprises one of a screen belt and a felt belt.

23. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned in an area wherein the fibrous material web is transferred.

24. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned in an area wherein the fibrous material web is transferred to another moving surface.

25. The machine of claim 1, wherein the other moving surface is a felt.

26. The machine of claim 1, wherein the other moving surface is a smooth surface.

27. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned near a single-felted press.

28. The machine of claim 1, wherein the at least one electrostatic air boundary layer swirler is positioned near a double-felted press.

29. The machine of claim 1, further comprising at least one of a seal and a stabilizer associated with the at least one electrostatic air boundary layer swirler.

30. The machine of claim 29, wherein the at least one electrostatic air boundary layer swirler is located in a single-tier drying section.

31. The machine of claim 29, wherein the seal comprises at least one of a felt seal, a floating seal blade, and an air knife.

32. A machine for use in manufacturing a fibrous material web comprising:

at least one electrostatic air boundary layer swirler arranged near a moving surface;

the moving surface comprising at least one of the fibrous material web, a belt, a roll, a felt, and a surface which supports the fibrous material web;

the at least one electrostatic air boundary layer swirler comprising at least one charging electrode and at least one counterelectrode;

at least one nozzle moistener arranged near the at least one electrostatic air boundary layer swirler;

the at least one electrostatic air boundary layer swirler being adapted to at least one of:

at least partially remove a laminar air boundary layer formed on the moving surface; and

at least partially disturb a laminar air boundary layer formed on the moving surface.

33. The machine of claim 32, wherein the fibrous material web is one of a paper and a cardboard web.

34. The machine of claim 32, wherein the at least one nozzle moistener impinges the fibrous material web with a spray in order to remove, at least partially, the laminar air boundary layer.

35. The machine of claim 34, wherein the spray comprises moisture.

36. The machine of claim 32, wherein the at least one electrostatic air boundary layer swirler is arranged, with respect to a web travel direction, near to and in front of the at least one nozzle moistener.

37. The machine of claim 36, wherein a distance between the at least one electrostatic air boundary layer swirler and the at least one nozzle moistener is less than or equal to approximately 1.5 m.

38. The machine of claim 32, wherein the at least one nozzle moistener comprises at least one nozzle.

39. The machine of claim 38, wherein the at least one nozzle comprises at least two nozzles.

40. The machine of claim 32, wherein the at least one nozzle moistener comprises at least one of a single-component nozzle, a hydraulic atomizer nozzle, a two-component nozzle and a pneumatic atomizer nozzle.

41. The machine of claim 32, wherein the at least one nozzle moistener comprises an application nozzle moistener.

42. The machine of claim 32, further comprising at least one deflecting strip arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

43. The machine of claim 42, further comprising a separating gap in the range of approximately 0.5 to approximately 2.0 cm being positioned between the moving surface and the at least one deflecting strip.

44. The machine of claim 32, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, whereby the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap.

45. The machine of claim 32, further comprising at least one suction device arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

46. The machine of claim 45, wherein the at least one suction device is positioned between the at least one electrostatic air boundary layer swirler and a deflecting strip.

47. The machine of claim 32, wherein the at least one electrostatic air boundary layer swirler is integrated into the at least one nozzle moistener.

48. A machine for use in manufacturing a fibrous material web comprising:

at least one electrostatic air boundary layer swirler arranged near a moving surface;

the moving surface comprising at least one of the fibrous material web, a belt, a roll, a felt, and a surface which supports the fibrous material web;

the at least one electrostatic air boundary layer swirler comprising at least one charging electrode and at least one counterelectrode;

at least one steam moistener arranged near the at least one electrostatic air boundary layer swirler;

the at least one electrostatic air boundary layer swirler being adapted to at least one of:

at least partially remove a laminar air boundary layer formed on the moving surface; and

at least partially disturb a laminar air boundary layer formed on the moving surface.

49. The machine of claim 48, wherein the fibrous material web is one of a paper and a cardboard web.

50. The machine of claim 48, wherein the at least one steam moistener impinges the fibrous material web with a spray in order to remove, at least partially, the laminar air boundary layer.

51. The machine of claim 48, wherein the at least one electrostatic air boundary layer swirler is arranged, with respect to a web travel direction, near to and in front of the at least one steam moistener.

52. The machine of claim 51, wherein a distance between the at least one electrostatic air boundary layer swirler and the at least one steam moistener is less than or equal to approximately 1.5 m.

53. The machine of claim 48, wherein the at least one steam moistener comprises at least one nozzle.

54. The machine of claim 48, further comprising at least one deflecting strip arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

55. The machine of claim 54, further comprising a separating gap in the range of approximately 0.5 to approximately 2.0 cm being positioned between the moving surface and the at least one deflecting strip.

56. The machine of claim 48, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, whereby the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap.

57. The machine of claim 48, further comprising at least one suction device arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

58. The machine of claim 57, wherein the at least one suction device is positioned between the at least one electrostatic air boundary layer swirler and a deflecting strip.

59. The machine of claim 48, wherein the at least one electrostatic air boundary layer swirler is integrated into the at least one steam moistener.

60. A machine for use in manufacturing a fibrous material web comprising:

at least one electrostatic air boundary layer swirler arranged near a moving surface;

the moving surface comprising at least one of the fibrous material web, a belt, a roll, a felt, and a surface which supports the fibrous material web;

the at least one electrostatic air boundary layer swirler comprising at least one charging electrode and at least one counterelectrode;

at least one steam blow box arranged near the at least one electrostatic air boundary layer swirler;

the at least one electrostatic air boundary layer swirler being adapted to at least one of:

at least partially remove a laminar air boundary layer formed on the moving surface; and

at least partially disturb a laminar air boundary layer formed on the moving surface.

61. The machine of claim 60, wherein the fibrous material web is one of a paper and a cardboard web.

62. The machine of claim 60, wherein the at least one steam blow box impinges the fibrous material web with a steam in order to remove, at least partially, the laminar air boundary layer.

63. The machine of claim 60, wherein the at least one electrostatic air boundary layer swirler is arranged, with respect to a web travel direction, near to and in front of the at least one steam blow box.

64. The machine of claim 63, wherein a distance between the at least one electrostatic air boundary layer swirler and the at least one steam blow box is less than or equal to approximately 1.5 m.

65. The machine of claim 60, further comprising at least one deflecting strip arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

66. The machine of claim 65, further comprising a separating gap in the range of approximately 0.5 to approximately 2.0 cm being positioned between the moving surface and the at least one deflecting strip.

67. The machine of claim 60, wherein the at least one electrostatic air boundary layer swirler is positioned upstream of or in front of a gap, whereby the at least one electrostatic air boundary layer swirler removes, at least partially, the laminar air boundary layer formed on the moving surface before the laminar air boundary layer reaches the gap.

68. The machine of claim 60, further comprising at least one suction device arranged at least one of upstream of the at least one electrostatic air boundary layer swirler and downstream of the at least one electrostatic air boundary layer swirler.

69. The machine of claim 68, wherein the at least one suction device is positioned between the at least one electrostatic air boundary layer swirler and a deflecting strip.

70. The machine of claim 60, wherein the at least one electrostatic air boundary layer swirler is integrated into the at least one steam blow box.

71. A machine for use in manufacturing a fibrous material web comprising:

at least one electrostatic air boundary layer swirler arranged near a moving surface;

the moving surface comprising at least one of the fibrous material web, a belt, a roll, a felt, and a surface which supports the fibrous material web;

the at least one electrostatic air boundary layer swirler comprising at least one charging electrode and at least one counterelectrode;

at least one device for moistening arranged near the at least one electrostatic air boundary layer swirler;

the at least one electrostatic air boundary layer swirler being adapted to at least one of:

at least partially remove a laminar air boundary layer formed on the moving surface; and

at least partially disturb a laminar air boundary layer formed on the moving surface.

72. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler is one of located adjacent to and coupled to at least one deflecting strip.

73. The machine of claim 71, wherein the at least one device for moistening is one of located adjacent to and coupled to at least one deflecting strip.

74. The machine of claim 71, the at least one device for moistening comprises at least one of a nozzle moistener, a steam moistener, a steam blow box, and a moisture spraying device.

75. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler is one of located adjacent to and coupled to at least one suction device.

76. The machine of claim 71, wherein the at least one device for moistening is one of located adjacent to and coupled to at least one suction device.

77. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler includes at least one suction device.

78. The machine of claim 71, wherein the at least one device for moistening includes at least one suction device.

79. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler includes at least one deflecting strip.

80. The machine of claim 71, wherein the at least one device for moistening includes at least one deflecting strip.

81. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler includes the at least one device for moistening.

82. The machine of claim 71, wherein the at least one device for moistening includes the at least one electrostatic air boundary layer swirler.

83. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler is coupled to the at least one device for moistening.

84. The machine of claim 71, wherein the at least one device for moistening is coupled to the at least one electrostatic air boundary layer swirler.

85. The machine of claim 71, further comprising a sealing strip arranged near the at least one device for moistening.

86. The machine of claim 71, wherein the at least one device for moistening is adapted to provide suctioning.

87. The machine of claim 71, wherein the at least one device for moistening is arranged in the area of a calender.

88. The machine of claim 71, wherein the at least one electrostatic air boundary layer swirler is arranged in the area of a calender.

89. A method of manufacturing a fibrous material web using a device which comprises at least one electrostatic air boundary layer swirler arranged near a moving

surface, the moving surface comprising at least one of the fibrous material web, a belt, a roll, a felt, and a surface which supports the fibrous material web, the at least one electrostatic air boundary layer swirler comprising at least one charging electrode and at least one counterelectrode, at least one device for moistening arranged near the at least one electrostatic air boundary layer swirler, the method comprising:

subjecting the moving surface to a plasma current or a plasma stream; and

at least partially removing a laminar air boundary layer formed on the moving surface.

90. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler is one of located adjacent to and coupled to at least one deflecting strip.

91. The method of claim 89, wherein the at least one device for moistening is one of located adjacent to and coupled to at least one deflecting strip.

92. The method of claim 89, the at least one device for moistening comprises at least one of a nozzle moistener, a steam moistener, a steam blow box, and a moisture spraying device.

93. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler is one of located adjacent to and coupled to at least one suction device.

94. The method of claim 89, wherein the at least one device for moistening is one of located adjacent to and coupled to at least one suction device.

95. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler includes at least one suction device.

96. The method of claim 89, wherein the at least one device for moistening includes at least one suction device.

97. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler includes at least one deflecting strip.

98. The method of claim 89, wherein the at least one device for moistening includes at least one deflecting strip.

99. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler includes the at least one device for moistening.

100. The method of claim 89, wherein the at least one device for moistening includes the at least one electrostatic air boundary layer swirler.

101. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler is coupled to the at least one device for moistening.

102. The method of claim 89, wherein the at least one device for moistening is coupled to the at least one electrostatic air boundary layer swirler.

103. The method of claim 89, further comprising a sealing strip arranged near the at least one device for moistening.

104. The method of claim 89, wherein the at least one device for moistening is adapted to provide suctioning.

105. The method of claim 89, wherein the at least one device for moistening is arranged in the area of a calender.

106. The method of claim 89, wherein the at least one electrostatic air boundary layer swirler is arranged in the area of a calender.